

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

- Claim 1. **(Currently Amended)** A method for electrochemically depositing a polysaccharide having a selected physical state, onto a substrate surface, wherein said method comprises:
providing a substrate comprising said substrate surface, said substrate surface comprising an electrically conductive support;
contacting the electrically conductive support with an aqueous solution comprising a selectively insolubilizable polysaccharide; and
electrochemically depositing the selectively insolubilizable polysaccharide on the electrically conductive support while controlling deposition conditions to form a polysaccharide mass having a selected physical state deposited onto said substrate surface, **wherein the selected physical state comprises that of a hydrogel.**
- Claim 2. **(Canceled)**
- Claim 3. **(Currently Amended)** The method of claim 1 **2**, wherein said electrochemically depositing is conducted at a current density of about 20 A/m² to about 100 A/m².
- Claim 4. **(Currently Amended)** The method of claim 1 **3**, wherein said electrochemically depositing is conducted at a pH of about 5 to about 5.5.
- Claim 5. **(Currently Amended)** The method of claim 1 **[4]**, wherein said electrochemically depositing is conducted for a deposition time of about 2 minutes to about 30 minutes.

- Claim 6. **(Currently Amended)** ~~The method of claim 1~~ A method for electrochemically depositing a polysaccharide having a selected physical state, onto a substrate surface, wherein said method comprises: providing a substrate comprising said substrate surface, said substrate surface comprising an electrically conductive support; contacting the electrically conductive support with an aqueous solution comprising a selectively insolubilizable polysaccharide; and electrochemically depositing the selectively insolubilizable polysaccharide on the electrically conductive support while controlling deposition conditions to form a polysaccharide mass having a selected physical state deposited onto said substrate surface,
wherein said controlling of deposition conditions comprises varying the deposition conditions during said electrochemical deposition to provide the polysaccharide mass with a hydrogel portion and a solid compact film portion.
- Claim 7. **(Previously Presented)** The method of claim 6, wherein the hydrogel portion is layered on top of the solid compact film portion.
- Claim 8. **(Previously Presented)** The method of claim 1, wherein the selectively insolubilizable polysaccharide comprises an ionizable group that is ionized to provide a positive charge.
- Claim 9. **(Previously Presented)** The method of claim 8, wherein the ionizable group comprises an alkyl amine group, a primary amine group, a secondary amine group, a tertiary amine group, a guanidinium group, an imidazole group, an indole group, a purine group, a pyrimidine group, or a pyrrole group.
- Claim 10. **(Previously Presented)** The method of claim 9, wherein the ionizable group comprises a primary amine group.

- Claim 11. **(Previously Presented)** The method of claim 10, wherein the selectively insolubilizable polysaccharide comprises chitosan.
- Claim 12. **(Currently Amended)** The method of claim ~~8~~ **11**, further comprising treating the polysaccharide mass with a sufficiently basic solution to stabilize the polysaccharide mass.
- Claim 13. **(Currently Amended)** ~~The method of claim 1~~ **A method for electrochemically depositing a polysaccharide having a selected physical state, onto a substrate surface, wherein said method comprises: providing a substrate comprising said substrate surface, said substrate surface comprising an electrically conductive support; contacting the electrically conductive support with an aqueous solution comprising a selectively insolubilizable polysaccharide; and electrochemically depositing the selectively insolubilizable polysaccharide on the electrically conductive support while controlling deposition conditions to form a polysaccharide mass having a selected physical state deposited onto said substrate surface,** wherein the selectively insolubilizable polysaccharide comprises an ionizable group that is ionized to provide a negative charge.
- Claim 14. **(Previously Presented)** The method of claim 13, wherein the ionizable group comprises an alkoxide group, a carboxyl group, a hydroxy acid group, a phenolic group, a phosphate group, or a sulfhydryl group.
- Claim 15. **(Previously Presented)** The method of claim 14, wherein the ionizable group comprises a carboxyl group.
- Claim 16. **(Previously Presented)** The method of claim 13, further comprising treating the polysaccharide mass with a sufficiently acidic solution to stabilize the polysaccharide mass.

- Claim 17. **(Previously Presented)** The method of claim 1, wherein the substrate comprises a non-conducting, inorganic material.
- Claim 18. **(Previously Presented)** The method of claim 17, wherein the substrate comprises silicon.
- Claim 19. **(Previously Presented)** The method of claim 18, wherein the electrically conductive support comprises gold.
- Claim 20. **(Previously Presented)** The method of claim 1, wherein:
the electrically conductive support is patterned and the substrate surface further comprises an electrically non-conductive portion; and
said depositing comprises selectively depositing the selectively insolubilizable polysaccharide on the patterned electrically conductive support.
- Claim 21. **(Previously Presented)** The method of claim 20, wherein the patterned electrically conductive support comprises a plurality of parallel lines spaced apart from one another.
- Claim 22. **(Currently Amended)** The method of claim 1, ~~wherein the polysaccharide mass comprises a hydrogel, and~~ wherein the method further comprises entrapping in the hydrogel at least one member selected from the group consisting of colloids, micelles, vesicles and cells.
- Claim 23. **(Currently Amended)** The method of claim 1, wherein the selectively insolubilizable polysaccharide comprises chitosan, ~~and wherein the polysaccharide mass comprises a hydrogel.~~
- Claims 24-43. **(Canceled)**
- Claim 44. **(New)** The method of claim 6, wherein said electrochemically depositing is conducted at a current density of about 20 A/m² to about 100 A/m².

- Claim 45. **(New)** The method of claim 6, wherein said electrochemically depositing is conducted at a pH of about 5 to about 5.5.
- Claim 46. **(New)** The method of claim 6, wherein said electrochemically depositing is conducted for a deposition time of about 2 minutes to about 30 minutes.
- Claim 47. **(New)** The method of claim 6, wherein the polysaccharide mass comprises a hydrogel, and wherein the method further comprises entrapping in the hydrogel at least one member selected from the group consisting of colloids, micelles, vesicles and cells.
- Claim 48. **(New)** The method of claim 6, wherein the substrate comprises a non-conducting, inorganic material.
- Claim 49. **(New)** The method of claim 48, wherein the substrate comprises silicon.
- Claim 50. **(New)** The method of claim 49, wherein the electrically conductive support comprises gold.
- Claim 51. **(New)** The method of claim 6, wherein:
 the electrically conductive support is patterned and the substrate surface further comprises an electrically non-conductive portion; and
 said depositing comprises selectively depositing the selectively insolubilizable polysaccharide on the patterned electrically conductive support.
- Claim 52. **(New)** The method of claim 51, wherein the patterned electrically conductive support comprises a plurality of parallel lines spaced apart from one another.
- Claim 53. **(New)** The method of claim 6, wherein the selectively insolubilizable polysaccharide comprises chitosan.
- Claim 54. **(New)** The method of claim 13, wherein said electrochemically depositing is conducted at a current density of about 20 A/m² to about 100 A/m².

- Claim 55. **(New)** The method of claim 13, wherein said electrochemically depositing is conducted at a pH of about 5 to about 5.5.
- Claim 56. **(New)** The method of claim 13, wherein said electrochemically depositing is conducted for a deposition time of about 2 minutes to about 30 minutes.
- Claim 57. **(New)** The method of claim 13, wherein the polysaccharide mass comprises a hydrogel, and wherein the method further comprises entrapping in the hydrogel at least one member selected from the group consisting of colloids, micelles, vesicles and cells.
- Claim 58. **(New)** The method of claim 13, wherein the substrate comprises a non-conducting, inorganic material.
- Claim 59. **(New)** The method of claim 58, wherein the substrate comprises silicon.
- Claim 60. **(New)** The method of claim 59, wherein the electrically conductive support comprises gold.
- Claim 61. **(New)** The method of claim 13, wherein:
 the electrically conductive support is patterned and the substrate surface further comprises an electrically non-conductive portion; and
 said depositing comprises selectively depositing the selectively insolubilizable polysaccharide on the patterned electrically conductive support.
- Claim 62. **(New)** The method of claim 61, wherein the patterned electrically conductive support comprises a plurality of parallel lines spaced apart from one another.